

WHAT IS CLAIMED IS:

1 1. A server for use in a system which provides information  
2 to a user terminal, said server comprising:

3 a database for retaining bubble data in which spatial  
4 range information in a three-dimensional space is associated  
5 with retrieval information for obtaining service information  
6 to be provided;

7 an extracting section for extracting, on the basis of  
8 positional information transmitted from said user terminal,  
9 specified retrieval information corresponding to specified  
10 spatial range information including said positional  
11 information, of said spatial range information retained in said  
12 database; and

13 a providing section for providing, to said user terminal,  
14 specified service information corresponding to said specified  
15 retrieval information extracted in said extracting section.

1 2. A server for use in a system which provides information  
2 to a user terminal, said server comprising:

3 a database for retaining bubble data in which spatial  
4 range information including a latitude of an object, a  
5 longitude thereof, an altitude thereof and a bubble diameter  
6 thereof in a three-dimensional space is associated with an  
7 address for acquiring assorted information related to said  
8 object or service information related to said assorted  
9 information;

10 an extracting section for extracting, on the basis of  
11 positional information including a latitude of said user  
12 terminal, a longitude thereof, an altitude thereof, a direction  
13 thereof and an inclination angle thereof transmitted from said  
14 user terminal, a specified address corresponding to specified  
15 spatial range information including said positional  
16 information, of said spatial range information retained in said  
17 database; and

18 a providing section for providing, to said user terminal,  
19 specified service information corresponding to said specified  
20 address extracted in said extracting section.

1 3. A server for use in a system which provides information  
2 to a user terminal, said server comprising:

3 a database for retaining bubble data in which spatial  
4 range information including a latitude of a building, a  
5 longitude thereof, an altitude thereof and a bubble diameter  
6 thereof in a three-dimensional space is associated with a  
7 uniform resource locator for acquiring facility information  
8 related to said building or service information related to said  
9 facility information;

10 an extracting section for extracting, on the basis of  
11 positional information including a latitude of said user  
12 terminal, a longitude thereof, an altitude thereof, a direction  
13 thereof and an inclination angle thereof transmitted from said  
14 user terminal, a specified uniform resource locator  
15 corresponding to specified bubble data including said

16 positional information, of said bubble data retained in said  
17 database; and

18 a providing section for providing, to said user terminal,  
19 specified service information corresponding to said specified  
20 uniform resource locator extracted in said extracting section.

1 4. A server according to claim 3, further comprising a web  
2 information outputting section for holding user information  
3 and an address generating section for generating an address  
4 retaining said user information held in said web information  
5 output section.

1 5. A server for use in a system which provides information  
2 to a user terminal, said server comprising:

3 a database for retaining bubble data in which spatial  
4 range information including a latitude of a target, a longitude  
5 thereof, an altitude thereof and a bubble diameter thereof in  
6 a three-dimensional space is associated with an message  
7 information retaining address established in a range of said  
8 bubble diameter;

9 an extracting section for extracting message  
10 information retained in said database on the basis of  
11 positional information including a latitude of said user  
12 terminal, a longitude thereof, an altitude thereof, a direction  
13 thereof and an inclination angle thereof transmitted from said  
14 user terminal; and

15 a providing section for providing, to said user terminal,

16 said message information extracted in said extracting section.

1 6. A server according to claim 1, wherein said database sets  
2 an address based on said spatial range information as an  
3 electronic mail address, and retains said spatial range  
4 information in corresponding relation to said electronic mail  
5 address.

1 7. A server according to claim 1, wherein said database  
2 retains, as said bubble data, service information on a public  
3 transportation terminal and information on transportation  
4 time.

1 8. A server according to claim 7, wherein said database  
2 updates said information on transportation time according to  
3 the present time.

1 9. A server according to claim 1, wherein said database is  
2 designed to sequentially update said bubble diameter of said  
3 bubble data on the basis of said positional information  
4 transmitted from a moving object.

1 10. A user terminal for use in a system which provides  
2 information to said user terminal, said user terminal  
3 comprising:

4 a detecting section for detecting positional  
5 information on an object;

6 a transmitting section for transmitting said positional  
7 information, detected in said detecting section, to a server;

8 a receiving section for receiving, in connection with  
9 said positional information transmitted from said  
10 transmitting section, specified service information  
11 corresponding to specified spatial range information  
12 including said positional information, of spatial range  
13 information in a three-dimensional space transmitted from said  
14 server; and

15 a displaying section for displaying said specified  
16 service information received in said receiving section.

1 11. A user terminal for use in a system which provides  
2 information to said user terminal, said user terminal  
3 comprising:

4 a detecting section for detecting positional  
5 information including a latitude of an object, a longitude  
6 thereof, an altitude thereof, a direction thereof and an  
7 inclination angle thereof;

8 a transmitting section for transmitting said positional  
9 information, detected in said detecting section, to a server;

10 a receiving section for receiving, in connection with  
11 said positional information transmitted from said  
12 transmitting section, specified service information  
13 corresponding to specified spatial range information  
14 including said positional information, of spatial range  
15 information comprising a latitude of an object, a longitude

16 thereof, an altitude thereof and a bubble diameter thereof in  
17 a three-dimensional space transmitted from said server; and  
18 a displaying section for displaying said specified  
19 service information received in said receiving section.

1 12. A user terminal for use in a system which provides  
2 information to said user terminal, said user terminal  
3 comprising:

4 a detecting section for detecting positional  
5 information including a latitude of said user terminal, a  
6 longitude thereof, an altitude thereof, a direction thereof  
7 and an inclination angle thereof;

8 a transmitting section for transmitting said positional  
9 information detected in said detecting section to a server;

10 a receiving section for receiving, in connection with  
11 said positional information transmitted from said  
12 transmitting section, specified service information  
13 corresponding to specified spatial range information  
14 including said positional information, of spatial range  
15 information comprising a latitude of an object, a longitude  
16 thereof, an altitude thereof and a bubble diameter thereof in  
17 a three-dimensional space transmitted from said server; and  
18 a displaying section for displaying said specified  
19 service information received in said receiving section.

1 13. A user terminal according to claim 10, wherein said  
2 detecting section is composed of a direction sensor for

3 measuring a direction and a satellite information receiving  
4 section for receiving satellite information through the use  
5 of a global positioning system.

1 14. A user terminal according to claim 10, wherein said  
2 detecting section includes an inclination sensor for measuring  
3 an inclination angle of said user terminal with respect to the  
4 horizontal line.

1 15. A user terminal according to claim 10, further comprising  
2 a hand-in-use discriminating section for detecting the number  
3 of fingers on a housing of said user terminal to make a decision  
4 on a hand of a user being used.

1 16. A user terminal according to claim 10, further comprising  
2 a voice guide section for conducting a guide to a place for  
3 said specified service information, received in said receiving  
4 section, through the use of a speech file.

1 17. An information providing service system which provides  
2 information to a user terminal, said system comprising:  
3 a server for retaining bubble data in which spatial range  
4 information including a latitude of an object, a longitude  
5 thereof, an altitude thereof and a bubble diameter thereof in  
6 a three-dimensional space is associated with an address holding  
7 assorted information related to said object or service  
8 information related to said assorted information; and

9           a user terminal connected through a network to said  
10 server for displaying said assorted information retrieved  
11 through the use of said bubble data,  
12           said server including:  
13           a database for retaining bubble data in which said  
14 spatial range information is associated with retrieval  
15 information for retrieving service information to be provided;  
16           an extracting section for extracting, on the basis  
17 of positional information transmitted from said user terminal,  
18 specified retrieval information corresponding to specified  
19 spatial range information containing said positional  
20 information, of the spatial range information retained in the  
21 database; and  
22           a providing section for providing, to said user  
23 terminal, specified service information corresponding to said  
24 specified retrieval information extracted in said extracting  
25 section,  
26           said user terminal including:  
27           a detecting section for detecting said positional  
28 information;  
29           a transmitting section for transmitting said  
30 positional information detected in said detecting section to  
31 said server;  
32           a receiving section for receiving said specified  
33 service information retained in said server in connection with  
34 said positional information transmitted from said  
35 transmitting section; and



36                   a displaying section for displaying said service  
37 information received in said receiving section.

1   18.   An information providing service system according to  
2 claim 17, wherein said transmitting section transmits, to said  
3 server, a user's viewing direction detected on the basis of  
4 an inclination angle of said user terminal with respect to the  
5 horizontal line, while said server retrieves a desired subject  
6 on the basis of said viewing direction.

1   19.   An information providing service method for use in a  
2 system which provides information to a user terminal, said  
3 method comprising:

4           a measuring step in which said user terminal measures  
5 positional information including its own latitude, longitude,  
6 altitude, direction and inclination angle;

7           a measured information transmitting step in which said  
8 user terminal transmits, to a server, said positional  
9 information measured in said measuring step and a retrieval  
10 condition;

11          a retrieving step in which said server retrieves, on the  
12 basis of said positional information transmitted in said  
13 measured information transmitting step, a plurality of  
14 specified service information from a plurality of bubble data  
15 in which spatial range information including a latitude of an  
16 object, a longitude thereof, an altitude thereof and a bubble  
17 diameter thereof in a three-dimensional space is associated

18 with assorted information related to said object or an address  
19 for obtaining service information related to said assorted  
20 information; and

21 a retrieval result notifying step in which said server  
22 notifies said user terminal of said plurality of specified  
23 service information retrieved in said retrieving step.

1 20. An information providing service method according to  
2 claim 19, wherein said retrieving step includes:

3 an extracting step of extracting a second information  
4 bubble from a plurality of information bubbles representative  
5 of images of spatial occupancy information of bubble data  
6 according to a first condition on the basis of said positional  
7 information and said spatial range information of said bubble  
8 data;

9 an address extracting step of selecting a third  
10 information bubble from said second information bubble,  
11 extracted in said extracting step, according to a second  
12 condition for extracting a uniform resource locator  
13 corresponding to said third information bubble; and

14 a selecting step of selecting and outputting said  
15 specified service information corresponding to said uniform  
16 resource locator extracted in said address extracting step.

1 21. An information providing service method according to  
2 claim 20, wherein, in said retrieving step, an intersection  
3 information bubble intersecting a retrieval vector

4 representative of a direction of said user terminal toward a  
5 subject to be retrieved is extracted as said second information  
6 bubble from said plurality of information bubbles.

1 22. An information providing service method according to  
2 claim 21, wherein said extracting step is made to extract a  
3 bubble, positioned in a direction of the retrieval vector, as  
4 said second information bubble from said plurality of  
5 information bubbles, and said selecting step is made to output  
6 all said second information bubbles.

1 23. An information providing service method according to  
2 claim 22, wherein said selecting step is made to output, of  
3 said second information bubble, a bubble existing in a  
4 predetermined range.

1 24. An information providing service method according to  
2 claim 21, wherein said extracting step is made to extract, as  
3 said second information bubble, the first visible object of  
4 objects in a direction said user terminal takes, through the  
5 use of map data.

1 25. An information providing service method according to  
2 claim 21, wherein said extracting step is made to extract said  
3 second information bubble taking configuration and location  
4 of a subject to be retrieved into consideration.

1 26. An information providing service method according to  
2 claim 19, further comprising, after said retrieval result  
3 notifying step, a selected information transmitting step in  
4 which said user terminal transmits, of said plurality of  
5 specified service information notified in said retrieval  
6 result notifying step, service information selected by a user  
7 to said server and a displaying step in which said user terminal  
8 displays said service information selected in said selected  
9 information transmitting step.

1 27. An information providing service method for use in a  
2 system which provides information to a user terminal, said  
3 method comprising:

4 a measuring step in which said user terminal measures  
5 positional information including its own latitude, longitude,  
6 altitude, direction and inclination angle;

7 a measured information transmitting step in which said  
8 user terminal transmits said positional information, measured  
9 in said measuring step, to a server; and

10 a registering step in which said server writes, in a  
11 database, said positional information transmitted in said  
12 information transmitting step and information on a subject to  
13 be retrieved.

1 28. An information providing service method according to  
2 claim 27, wherein said measuring step is made such that said  
3 user terminal is aligned with an information presenting tower

4 forming said subject to be retrieved, and said information  
5 transmitting step is made to transmit a desired message  
6 inputted by a user.

1 29. An information providing service method according to  
2 claim 19, wherein said retrieval result notifying step is made  
3 to give, to a user, information including characters, images  
4 or voice on a subject to be retrieved.

1 30. An information providing service method for use in a  
2 system which provides information to a user terminal, said  
3 method comprising:

4 a map information acquiring step in which a communication  
5 terminal acquires map information;

6 a service providing place selecting step in which said  
7 communication terminal selects a desired service providing  
8 place from said map information acquired in said map  
9 information acquiring step; and

10 a generating step in which a server connected through  
11 a network to said communication terminal generates bubble data  
12 in association with said place selected in said service  
13 providing place selecting step.

1 31. A server for a system which provides information to a  
2 user terminal, said server comprising:

3 a database for retaining bubble data in which region  
4 range information in a two-dimensional space is associated with

5 retrieval information for obtaining service information to be  
6 provided;

7 an extracting section for extracting, on the basis of  
8 positional information transmitted from said portable  
9 terminal, specified retrieval information corresponding to  
10 specified region range information including said positional  
11 information, of said region range information retained in said  
12 database; and

13 a providing section for providing, to said portable  
14 terminal, specified service information corresponding to said  
15 specified retrieval information extracted in said extracting  
16 section.